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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/826,974 | 04/05/2001 | Gong Gu | SAR 13995 | 4112 |

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EXAMINER

TRINH, SONNY

ART UNIT PAPER NUMBER

2687

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,974

Applicant(s)

GU ET AL.

Examiner

Sonny TRINH

Art Unit

2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-15, 17-19 is/are rejected.
- 7) ☒ Claim(s) 16 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed 10/21/05. Claims 1-20 are still pending.

Response to Arguments

2. Applicant's arguments with respect to claims 12, 17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 12-13, 15, 17-18** are rejected under 35 U.S.C. 102(b) as being anticipated by Hornak et al. (hereinafter "Hornak"; U.S. Patent Number 5,678,222).

Regarding **claim 12**, with reference to figure 17 and description (column 17 line 41 to column 17 line 43), Hornak discloses an image-reject mixer (column 6 line 15 to column 7 line 38) comprising a first mixer (figure 17, mixer 245) having a first filter (233) and a local oscillator (249) input; a second mixer (mixer 253) having a second filter (239) and a LO (257) input; and commutating circuitry for commutating said LO inputs of said first mixer and said second mixer between in-phase and quadrature phases (see

switches 247 and 255) also column 6 line 15 to column 7 line 38, column 8 line 39 and details of the invention.

Regarding **claim 13**, Hornak further discloses that the commutating circuitry generates two complementary 50 % duty cycle clock signals for commutating said LO inputs of said first mixer and said second mixer between in-phase and quadrature phases (column 9 line 35 to column 10 line 37).

Regarding **claim 15**, Laws further discloses that the commutating circuitry couples a LO signal that is commutated between in-phase and quadrature phases to said LO inputs of said first mixer and said second mixer (please see figure 17 and descriptions).

Regarding **claims 17-18**, these claims merely reflect the method claim as opposed to the apparatus claim of claims 12-13 and are therefore rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 14, 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hornak et al. (hereinafter "Hornak"; U.S. Patent Number 5,678,222).

Regarding **claim 14**, Hornak discloses the invention but does not explicitly disclose that the clock signals are square waves. However, square waves are well known and are widely used in the communication circuitry and the Examiner takes Official notice of such use. The motivation for using square waves is the ease of having 50 percent duty clock signal. The mixers can easily be implemented as integrated circuits and thus can be manufactured inexpensively.

Regarding **claim 19**, this claim merely reflects the method claim as opposed to the apparatus claim of claim 14 and is therefore rejected for the same reasons.

Allowable Subject Matter

5. **Claims 1-11** were allowed by the previous Office action.

Claims 16, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 16**, the prior art fails to teach that the image-reject mixer of claim 12 further comprising a commutating mixer for modulating the output of said second filter by the difference between said complementary clock signals.

Claim 20 is objected to for the same reason as given in the objection of claim 16.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester KINCAID can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


SONNY TRINH
PRIMARY EXAMINER

1/6/06